

5                   **LINEAR MINIMUM MEAN SQUARE ERROR EQUALIZATION WITH  
INTERFERENCE CANCELLATION FOR MOBILE COMMUNICATION  
FORWARD LINKS UTILIZING ORTHOGONAL CODES COVERED BY  
LONG PSEUDORANDOM SPREADING CODES**

**Abstract of the Disclosure**

10                   The present invention provides linear MMSE equalization with parallel  
interference cancellation for symbol determination in a forward link of a CDMA  
communication system which has a plurality of code channels in use. Use of the  
linear MMSE equalization with parallel interference cancellation of the present  
invention provides significantly increased performance. The preferred method  
linearly filters a received signal to form a first filtered signal (410), despreads and  
demodulates the first filtered signal (415, 420) and provides a plurality of symbol  
15                   estimates for all corresponding code channels (430). An estimated transmitted signal  
is generated from the plurality of symbol estimates (435), and with a channel estimate  
(405), an estimated received signal is generated (440). A residual signal is  
determined as a difference between the received signal and the estimated received  
signal, is linearly filtered (445), and then combined with the estimated transmitted  
20                   signal to form a next, enhanced estimated transmitted signal (450). This next  
estimated transmitted signal is despread (455, 460) and utilized to provide a next  
plurality of symbol estimates, for a selected code channel of the plurality of channels,  
for subsequent use in error correction and decoding, and further use by a subscriber  
(465, 475).

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